University Hospitals of Leicester NHS Trust | Nottingham University Hospitals NHS Trust | CoMET Children's Medical Emergency Transport

Anaphylaxis Management During Retrieval CoMET Guideline

This guideline is for use by healthcare staff, at CoMET undertaking critical care retrieval, transport and stabilisation of children, and young adults.

CoMET is a Paediatric Critical Care Transport service and is hosted by the University Hospitals of Leicester NHS trust working in partnership with the Nottingham University Hospitals NHS Trust.

The guidance supports decision making by individual healthcare professionals and to make decisions in the best interest of the individual patient.

This guideline represents the view of CoMET, and is produced to be used mainly by healthcare staff working for CoMET, although, professionals, working in similar field will find it useful for easy reference at the bedside.

We are grateful to the many existing paediatric critical care transport services, whose advice and current guidelines have been referred to for preparing this document. Thank You.

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Approved By:	**UHL Policy & Guideline Committee**
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Next Review Date:	**January 2027**

Education and Training

1. Annual Transport team update training days
2. Workshops delivered in Regional Transport Study days/ Outreach

Monitoring Compliance

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
Incident reporting	Review related Datix	Abi Hill – Lead Transport Nurse abi.hill@uhl-tr.nhs.uk	Monthly	CoMET Lead Governance Meeting
Documentation Compliance	Documentation Audit	Abi Hill – Lead Transport Nurse abi.hill@uhl-tr.nhs.uk	3 Monthly	CoMET Lead Governance Meeting

University Hospitals of Leicester NHS Trust
Nottingham University Hospitals NHS Trust
CoMET CHILDREN'S MEDICAL EMERGENCY TRANSPORT

Risks
Inadequate resuscitation

General resuscitation: A, B, C

Clinical history
- Sudden onset of Airway +/- Breathing +/- Circulation problems +/- skin or mucosal changes
- History of allergies/ allergens

Clinical signs
- Stridor, hoarse voice
- Increased WOB, wheeze, low sats
- Signs of shock, low BP
- Confusion, reduced consciousness

Likely diagnosis of Anaphylaxis → **Call senior staff**

High flow oxygen

Remove trigger if possible!
Ensure help is available: stop ambulance for any procedures

Primary treatment:
Adrenaline IM 1mg/ml (1in1000)
- <6 months: 100-150micrograms IM (0.1-0.15ml)
- 6 months-6 years: 150micrograms IM (0.15ml)
- 6-12 yrs : 300micrograms IM (0.3ml)
- >12 yrs: 500micrograms IM (0.5ml)

Repeated dose after 5-10 mins if required
APLS dosing is preferred (auto injector dosing may be used)

Stridor
Nebulised adrenaline (5ml of 1mg/ml [1:1000])

Wheeze
Nebulised Salbutamol
- 1 month – 4 years (2.5mg)
- ≥5years (5mg)

Repeat as required

Shocked patients (Hypotensive and weak pulses) (*CRT not a sign*)
10mL/kg crystalloid (plasmalyte if available) over 15 minutes and reassess, repeated as required

Reassess for improvement
Call CoMET consultant and update
Consider diversion to nearest hospital
Pre-alert destination

Improvement
If resolution, consider steroids and antihistamines

No improvement
Repeat **Adrenaline** IM

Consider refractory anaphylaxis if still no improvement – see box for refractory anaphylaxis

Monitoring (continue alongside all steps)
Neurological status
Saturations and respiratory effort
Haemodynamic status
IV sites if peripheral adrenaline given

Refer to CoMET if:
Advanced airway management
Refractory cardiovascular instability
No improvement

DO NOT delay IM adrenaline
AVOID sudden changes in posture, maintain patient in a supine/semi-recumbent position

Refractory Anaphylaxis

Give rapid IV fluid bolus and start an Adrenaline infusion

Continue to give IM adrenaline <u>every 5 minutes</u> until adrenaline infusion has been started (If agreed with the CoMET consultant you can give ***Adrenaline IV/IO (1:10,000) 1mcg/kg (Max 50mcg)***

<u>Adrenaline IV infusion</u>

(As per CoMET peripheral guideline)

75mcg/kg in 50mls at a rate of 0.05-0.2mcg/kg/min (2-8ml/hr)

If refractory to adrenaline infusion consider adding a second inotrope in addition (noradrenaline, vasopressin)

<u>Airway:</u>

<u>Partial obstruction/stridor-</u> give ***nebulised adrenaline 5ml of 1mg/ml (1:1000)***

<u>Total airway obstruction</u>- Intubation (see intubation box)

<u>Breathing:</u>

<u>If apnoeic</u>- Bag-mask ventilation, consider intubation

<u>Severe/persistent bronchospasm</u>- Nebulise salbutamol and ipratropium bromide, consider IV salbutamol or aminophylline

<u>Circulation:</u>

Give further fluid boluses according to patients response

Intubation

Indicated for developing airway obstruction or cardiorespiratory collapse

BEFORE:

- Get urgent senior anaesthetic & ENT support if evidence of airway obstruction
- May need inhalational induction +/- surgical airway
- Continue to give IM Adrenaline OR Adrenaline infusion +/- Adrenaline 0.5ml/kg 1in1000 nebulised (5ml of 1mg/ml [1:1000]) if waiting
- Ensure patent vascular access

AFTER INTUBATION:

- Ventilate as for air trapping/bronchospasm:
  - Pressure control (aim PIP <35cmH_2O)
  - Slow respiratory rate (e.g. 10-15 bpm), long expiratory time (e.g. I:E 1:2)
  - Permissive hypercapnoea - aim pH ≥7.2
  - PEEP 5cmH_2O
  - Muscle Relaxation
- Chest physiotherapy/suctioning for mucus plugging
- Observe for pneumothoraces

In the event of cardiopulmonary arrest, start CPR immediately and follow APLS guidelines

- **Note IM adrenaline is not recommended after cardiac arrest has occurred**

Consider agents administered before and during resuscitation of acutely unwell child as a trigger:

- Antibiotics – like Penicillins, Cephalosporins, Teicoplanin
- Neuromuscular blocking agents – like Atracurium, Rocuronium
- Blood products, contrast media
- Latex, chlorhexidine
- Any allergen a patient has been exposed to that is known to affect them

Note for Handover

- Mast cell tryptase – take samples immediately, and at 1hr and 6-24hrs after reaction
- Referral to an allergist in a Regional Allergy Centre
- Education for patients and parents

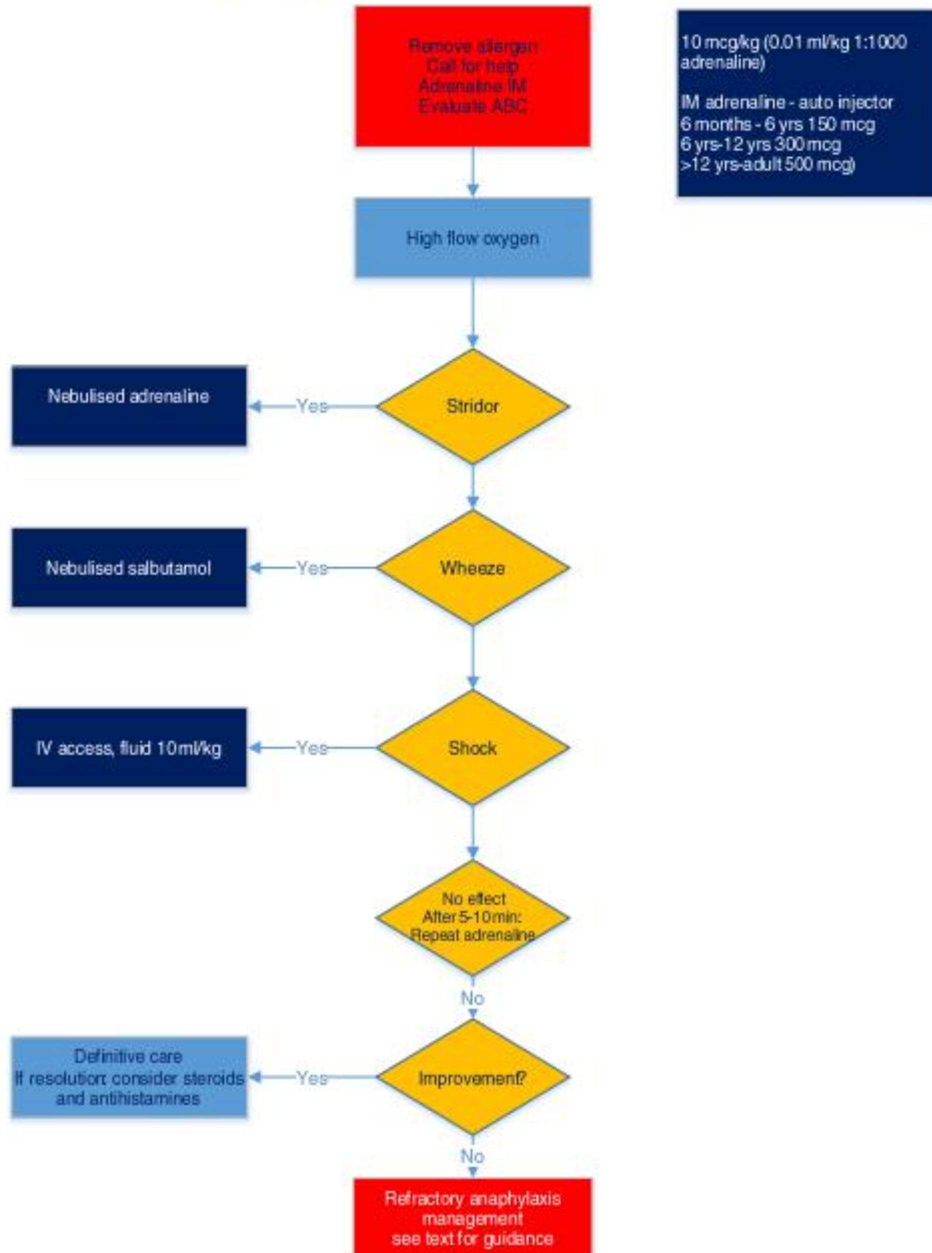
References:

1. CATS Anaphylaxis guideline – accessed August 2018 at www.cats.nhs.uk
2. NICE Quality Standard: Anaphylaxis QS119 March 2016 www.nice.org.uk/guidance/qs119
3. Emergency treatment of anaphylactic reactions- resuscitation council (UK); https://www.resus.org.uk/anaphylaxis/emergency-treatment-of-anaphylactic-reactions/
4. Updated Emergency treatment of anaphylactic reactions: Guidelines for healthcare providers (2021): Emergency treatment of anaphylactic reactions: Guidelines for healthcare providers | Resuscitation Council UK
5. D. Luyt et-al; Guideline for the management of suspected anaphylaxis in children under 16 years; LRI emergency department, UHL
6. Royal College of Anaesthetists; 6th National Audit Project: Perioperative Anaphylaxis May 2018 www.niaa.org.uk/NAP6Report
7. Richard Lockey; Anaphylaxis synopsis; www.worldallergy.org, sept 2012
8. Resuscitation Council UK; Emergency treatment of anaphylactic reactions: Guidelines for healthcare providers; 2021
9. ALSG; APLS anaphylaxis poster; 2022
10. Leicester Children's Hospital; Guideline for the management of Suspected Anaphylaxis in Children (under 16 years); 2022

Version	Issue Date	Author(s)	Description
2	September 2023	Mohammad Zoha Adrian Low	General formatting altered, inclusion of flowchart layout, dosing updated, align with APLS guideline, IV adrenaline & doses added

Appendix

APLS: Anaphylaxis



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